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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/788,880

02/27/2004

David A. Trout

17992

7111

7590

03/29/2005

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EXAMINER

GUSHI, ROSS N

ART UNIT

PAPER NUMBER

2833

DATE MAILED: 03/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Ex

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/788,880	TROUT ET AL	
	<b>Examiner</b>	<b>Art Unit</b>	
	Ross N. Gushi	2833	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 March 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 4-68 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 57-68 is/are allowed.
- 6) ☒ Claim(s) 1, 4, 6-8, 24, 25, 28, 30, 31, 33-39, 44, 46-48, 53-55 is/are rejected.
- 7) ☒ Claim(s) 5, 9-23, 26, 27, 29, 32, 40-43, 45, 49-52 and 56 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. <u>3/28/05</u> |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)                                 |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in —

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a);

Claims 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Harper, Jr. et al. ("Harper").

Per claim 1, Harper discloses an LGA interconnect, comprising a substrate and a plurality of contact assemblies, said substrate having a plurality of apertures therethrough arranged in an array, each said contact assembly comprised of at least one metal contact 213 and an insulative member 243 attached and overmolded on the contact, said insulative member being positioned in said aperture, positioning a first contact member of said metal contact above said substrate and a second contact of said metal contact below said substrate, said insulative member isolating said metal

contact from said substrate where the said insulative member is overmolded on said metal contact.

Claims 4, 6, 7, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Sinclair.

Per claim 4, Sinclair discloses an LGA interconnect, comprising a substrate 26 and a plurality of contact assemblies 38, said substrate having a plurality of apertures 32 therethrough arranged in an array, each said contact assembly comprised of at least one metal contact 40 and an insulative member 42 attached to and overmolded on the metal contact (col. 6, line 6), said insulative member being positioned in said aperture, positioning a first contact member 50 of said metal contact above said substrate and a second contact 52 of said metal contact below said substrate, said insulative member isolating said metal contact from said substrate and the substrate is rigid.

Per claim 6, said insulative member also retains said contact assembly to said substrate.

Per claim 7, said metal contact is comprised of an intermediate base portion with said first and second contact members extending from opposite ends thereof.

Per claim 8, said member is overmolded at said intermediate insulative portion.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 24, 25, 28, 30, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sinclair discussed regarding claims 4, 6, 7, and 8 in view of McHugh.

Regarding claim 24, Sinclair does not show the frame or housing. McHugh discloses housing 11 extending around substrate 12. At the time of the invention, it would have been obvious to include a housing around the Sinclair substrate as taught in McHugh. The suggestion or motivation for doing so would have been to securely guide and mount the chip on the substrate as taught in McHugh and as is well known in the art.

Per claim 25, the housing is insulative.

Regarding claim 28, McHugh discloses pins 121 on the substrate inserted in to holes 112 on the frame instead of vice versa. At the time of the invention, it would have been obvious to reverse the positions of the pins and hole on the frame and substrate. Such a modification would have been a matter of obvious engineering choice, being merely a reversal of parts. In re Gazda, 104 USPQ 400 (CCPA 1963).

Per claim 30, McHugh discloses stop members located along said housing to provide stop positions for said chip.

Per claim 31, said stop members are integrally formed in said housing.

Claims 33-39, 44-48, and 53-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harper, Jr. et al. ("Harper") in view of McHugh. Harper discloses an LGA interconnect, comprising a substrate and a plurality of contact assemblies, said substrate having a plurality of apertures therethrough arranged in an array, each said

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contact assembly comprised of at least one metal contact 213 and an insulative member 243, said insulative member being positioned in said aperture, a first contact member of said metal contact above said substrate and a second contact of said metal contact below said substrate, said insulative member isolating said metal contact from said substrate, and the first contact portion of a first of said plurality of contact assemblies faces said first contact portion of a second of said plurality of contact assemblies. Harper does not show the frame or housing. McHugh discloses housing 11 extending around substrate 12. At the time of the invention, it would have been obvious to include a housing around the Harper substrate as taught in McHugh. The suggestion or motivation for doing so would have been to securely guide and mount the chip on the substrate as taught in McHugh and as is well known in the art.

Per claim 34, said rigid substrate is comprised of metal 245.

Per claim 35, said insulative member is overmolded on said metal contact.

Per claim 36, said metal contact is comprised of an intermediate base portion with said first and second contact members extending from opposite ends thereof.

Per claim 37, said member is overmolded at said intermediate insulative portion.

Per claim 38, said overmolded insulative member has a head portion larger than said aperture and a shank portion profiled to be received said aperture.

Per claim 39, said insulative member is made of plastic material.

Per claim 44, McHugh discloses pins 121 on the substrate inserted in to holes 112 on the frame instead of vice versa. At the time of the invention, it would have been

obvious to reverse the positions of the pins and hole on the frame and substrate. Such a modification would have been a matter of obvious engineering choice, being merely a reversal of parts. In re Gazda, 104 USPQ 400 (CCPA 1963).

Per claim 46, the contact assemblies are arranged in at least two arrays as claimed.

Per claim 47, said least two arrays are aligned along at least one diagonal line across said substrate.

Per claim 48, said at least two arrays are aligned along plural diagonal lines.

Per claim 53, 54, , McHugh discloses stop members located along said housing to provide stop positions for said chip.

Per claim 55, said stop members are integrally formed in said housing.

### ***Response to Arguments***

Applicant's previously presented arguments have been considered. Regarding claim 1, applicant argues that the Harper insulative member is not positioned in an aperture. The examiner maintains that it is, for example the pegs 253 are clearly in an aperture as claimed. See Harper figure 8C. Regarding claim 33, applicant argues that Harper does not disclose that the first contact portion of a first of said plurality of contact assemblies faces said first contact portion of a second of said plurality of contact assemblies. The examiner maintains that it does. Applicant is not claiming that the first and second pluralities face each other, but rather only that the first plurality face the second.

### ***Allowable Subject Matter***

Claims 11, 12, 19-23, 26, 27, 29, 32, 40-43, 45, 49-52, and 56 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, for the reasons previously indicated.

Claims 5, 9, 10, and 13-23, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Regarding claim 5, the prior art does not suggest the device as claimed, including the combination of all the claimed elements, the combination including that the rigid substrate is comprised of metal. Regarding claim 9, the prior art does not suggest the device as claimed, including the combination of all the claimed elements, the combination including that the overmolded insulative member has a head portion larger than said aperture and a shank portion profiled to be received said aperture. Regarding claim 13, the prior art does not suggest the device as claimed, including the combination of all the claimed elements, the combination including the cantilevered beams as claimed.

Claims 57-68 are allowable.

### ***Conclusion***

Applicant's request for reconsideration filed 3/21/05 has been considered. Upon reconsideration as requested by Applicant, the prior Office action is withdrawn in favor of this final Action. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See




MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ross Gushi whose telephone number is (571) 272-2005. If attempts to reach the examiner by phone are unsuccessful, the examiner's supervisor, Paula A. Bradley, can be reached at 571-272-2800 extension 33. The phone number for the Group's facsimile is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
**ROSS GUSHI**  
**PRIMARY EXAMINER**